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March 12, 2001

BY HAND DELIVERY

Magalie Roman Salas, Esq., Secretary
Federal Communications Commission
445 Twelfth Street, S.W., Room TWB204
Washington, DC 20554

Re: Macquarie Bank Limited
WT Docket 00-230/Reply Comments

Dear Ms. Salas:

Macquarie Bank Limited ("Macquarie respectfully submits its reply comments in response to the Federal Communications Commission ("FCC") Notice of Proposed Rulemaking in the above-referenced matter.

Please date-stamp the extra copy of this letter and return it to the messenger. Please let me know if any questions arise.

Sincerely,

Christopher H. Johnson

CHJ/bhs
Enclosures (1 original, 1 copy for filing
and 1 file copy to return)
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Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of	)	
	)	
Promoting the Efficient Use of Spectrum	)	WT Docket Number 00-230
Through Elimination of Barriers to the	)	
Development of Secondary Markets	)	
	)	

REPLY COMMENTS OF MACQUARIE BANK LIMITED

March 12, 2001

Macquarie Bank Limited ("Macquarie") respectfully submits its reply comments in response to the Federal Communications Commission ("FCC") Notice of Proposed Rulemaking in the above-referenced matter.

Macquarie is one of the 50 largest publicly owned companies in Australia and operates one of the largest trading operations in the southern hemisphere. We are well known globally in niche markets including commodity trading (e.g., base metals, precious metals and agricultural commodities). Macquarie is also one of the largest retail and institutional dealers in Australian Securities.

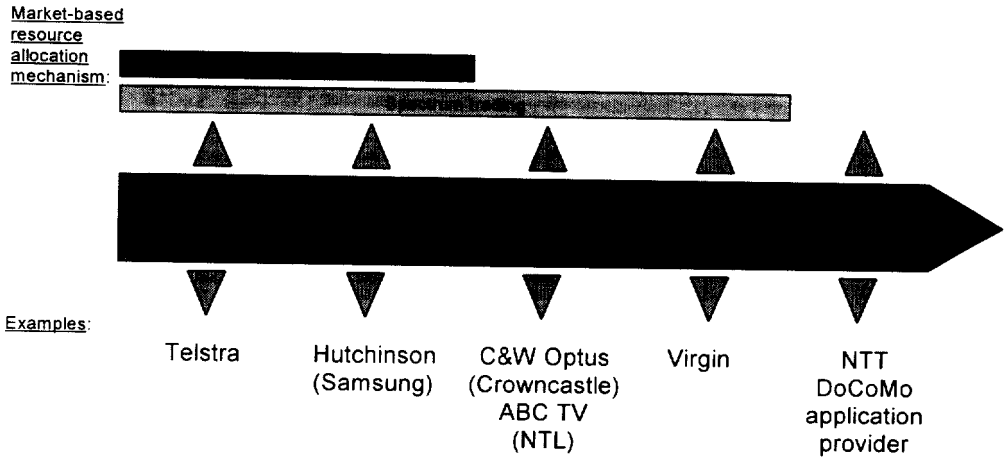
The Australian government has nearly completed its primary auctions of 15-year rights to use radio frequency spectrum (typically in the range of 500MHz to 31GHz) with 3G rights the next to be auctioned. As in many other countries, a number of Australian carriers have announced their intention to offer broadband applications via mobile communication devices.

The Australian Radiocommunications Act ("Act") provides rules to facilitate the secondary trading of spectrum through the creation of Standard Trading Units ("STU"'s). STUs are defined by geographic area, time period and radio frequency range. A summary of the Australian spectrum management and secondary trading regime appears in the Annex.

The Act also provides that a spectrum licensee may authorize other persons to operate radio communication devices under the license, thereby facilitating the development of a potential neutral market for spectrum assets. Australia has industry structures (e.g. network service providers) comparable to those in the United States, however the Australian market for mobile services is still dominated by vertically integrated carriers. Other service delivery strategies have started to emerge including 'mobile virtual network operators' such as Virgin Mobile and 'specialized infrastructure owners' (e.g. Crowncastle).

The development of wireless communications networks in some ways resembles the rapid development of the Internet as a commercial medium. In this model, business innovation has flourished as network access has not been constrained by barriers or supply limits. The wireless communications industry appears to be compartmentalizing in a similar manner. The development of bandwidth and spectrum trading markets is an important step towards disaggregation, thereby further reducing barriers to business and technical innovation. The diagram presented below presents a simplified overview of the componentization process.

ECONOMIC OPTIMIZATION OF THIS FINITE RESOURCE DEPENDS UPON FURTHER COMPONENTIZATION



After extensive discussion with Australian carriers, in December 2000 Macquarie announced the development of the world's first radio frequency spectrum trading market – www.spectrumdesk.com. Over the last 6 months, with industry input, Macquarie has developed a platform that is expected to deliver the promise of market-based efficiency and to promote the public interest in the efficient utilization of a finite public resource and certainty of rights and obligations.

The trading structures utilized by SpectrumDesk are designed to offer contractual certainty, may facilitate superior transaction costs and may also facilitate the development of spot and forward markets based on spectrum assets. SpectrumDesk, which will conduct both buyer and seller auctions, is based on robust market rules and the transparent flow of information between anonymous participants. The market is expected to begin its Australian operations on March 13, 2001.

Presently, the function of Macquarie's SpectrumDesk initiative is to use Australian spectrum management regulations in a way which permits a vigorous and efficient secondary market, which also overcomes legal and other impediments, such as contract negotiation, transaction charges such as some taxes, registration fees and the like.

The operation of SpectrumDesk is expected to offer the following potential public benefits:

1. It could lead to a new source of public revenue, for example by incumbent public authority spectrum holders (e.g. rail authorities, educational authorities, etc).
2. It could reduce the extent of government resources required in optimizing spectrum management by vesting those responsibilities with spectrum owners and secondary market operators subject to the ultimate sanction of mandated withdrawal of those rights.
3. It may lead to additional direct government revenue, for instance by charging of additional annual license fees, renewal option entitlement fees, etc.

Details of our response are set forth in the following sections:

1. SUMMARY OF MACQUARIE'S REPLY COMMENTS

Macquarie recognizes and supports the efforts of the FCC and the submissions of parties that promote the development of a viable and efficient secondary market for radio frequency spectrum rights in the United States. A market-based mechanism is well suited to optimize resource allocation based on price signals. However, due to the unique physical nature of spectrum and its finite supply, this submission proposes that the public interest to see this resource fully used requires regulation to achieve 'commoditisation', so that under-utilized spectrum is released to ensure liquidity. Failure to discourage 'warehousing' and to maximize the supply of spectrum to the secondary market or fulfillment of such trades could lead to systemic failure of wireless services in the same way that, in recent months, California faced a drastic electrical power shortage.

Failure to endow the market mechanism with these attributes may also retard development of mobile communication networks and applications. Similarly, the FCC must support a secondary trading mechanism that is forward looking and anticipates technology and demands, such as real-time provisioning. As a unique and finite public resource the value of a period of use of spectrum is likely to rise over time, and technological improvements will increasingly permit short-term use agreements, whereby some service providers can capacity manage and secure supply on a marginal use basis, rather than carrying and managing large inventories of under-utilized spectrum rights in anticipation of demand peaks.

In addition, regulation is needed to clarify and harmonize legal rights and obligations associated with radio frequency spectrum. United States law currently treats different types of spectrum rights differently, so that 'ownership', use and transferability of spectrum rights are in some cases clouded by uncertainty or rigidity. Unless these foundation issues are satisfactorily resolved, it is unlikely that contractual rights can be standardized to the extent required by a typical commodity market.

Unlike many commodity markets referenced in various submissions, the supply of spectrum is limited, and tied to a specific geographic location. Unlike electrical power, natural gas or oil, which are homogenous, fungible and manufactured in their nature, significant variation in the performance of spectrum within a region due to physical factors such as hills limit substitutability with other types of spectrum. In comparison, when power demand rises, more electrical power can be generated or more natural gas produced.

We believe that a vibrant secondary market for spectrum rights requires transparency, efficient pricing, greater liquidity than private contract sales and integrity. The exchange or market operator may need to self-regulate conduct of participants (e.g. NYSE), and avoid trading as 'principal' (i.e. on its own account).

2. CREATING CONDITIONS FOR AN EFFECTIVE SECONDARY MARKET

Although it has been argued that standard contracts and market rules are necessary to establish an efficient market, in isolation these do not suffice to create suitable conditions for spectrum trading. Secondary markets are best able to attract participation in a context of contractual certainty. Liquidity is promoted and more sophisticated financing and trading arrangements become possible where the following conditions can be established:

2.1 Clear and consistent ownership rights

Rights of ownership should be clearly defined in respect of a specific geographic area, radio frequency and time period. In some cases, these three-dimensional rights are also specific to a particular use (e.g. community broadcasting). Moreover, ownership rights should be consistent across different classes of spectrum.

2.2 Clear and consistent ownership obligations

In the same manner that ownership rights must be clearly defined, obligations attaching to that spectrum (such as non-interference) must be described so that the nature, cost and risks of owning radio frequency can be assessed in when

traded. As before, it is important that there is a consistent treatment of obligations attached to different classes of spectrum.

2.3 Clarify renewal process/requirements

Spectrum ownership rights are typically time-limited unlike many other tradable property rights such as shares and commodities). As a result some types of derivative trading agreements, such as forward contracts, may be affected. Longer term asset financing opportunities will be limited if rights are uncertain Spectrum owners currently fund the purchase of spectrum assets (10-15year life) on-balance sheet as the maturity is likely to be unsuited to an off-balance sheet financing arrangement. Certainty of renewal beyond the initial term could facilitate longer term financing opportunities.

2.4 Obligation to use or release to market

There should be disincentives, backed by legislation, to operators 'warehousing' unused spectrum assets, particularly where demand arises for such assets from third parties. An example of an appropriate disincentive to 'warehousing' might be a reduction in renewal rights for spectrum owners who fail to perform their 'substantial service' obligations. Consistent failure to use a spectrum right either directly or indirectly, as through a secondary market, could impair a holder's renewal option. On the other hand, spectrum holders who release underutilized spectrum could be rewarded by recognizing an inferred right to renew at the

expiration of a spectrum license period (e.g. right to match best bid at subsequent government auction).

2.5 Assignability of rights and obligations

A further requirement for a viable secondary market in spectrum rights is legal certainty regarding the assignment of rights and obligations associated with spectrum assets.

2.6 Fungibility

Active trading of spectrum rights through a secondary market requires sufficient fungibility, both in the legal nature of the assets being traded, and the market's ability to price the assets.

2.7 Leasing

The legislative framework should support the creation and assignability of rights to use spectrum for terms shorter than that of the parent license, to enable parties with fixed short-term needs for spectrum (such as for special events) to find supply in the market. The creation of derivative products (such as forward contracts) will allow such parties to lock-in costs in advance.

2.8 Flexibility of use

In many cases, spectrum rights are associated with conditions on use that limit their suitability for trading. To increase liquidity by attracting the broadcast range of potential buyers of spectrum assets, spectrum use restrictions should be minimized. If use restrictions are commonly attached to commercial spectrum licenses, their value and utilization may be adversely affected.

2.9 Lower transaction costs

One component of liquid markets that favors a high 'velocity' (turnover of available stock) is low transaction cost relative to the value of the underlying contract. Transaction costs include government taxes and charges, market operator fees and broker fees. Over-the-counter (OTC) commodity markets, bond markets and the NYSE are all highly liquid, in large measure because of their low transaction costs. Our experience has shown that, in some cases, trading in spectrum assets has featured the high tax rates more commonly associated with real property transactions, than the low taxes of securities trading. The FCC should cooperate with other regulatory authorities to minimize taxes on secondary market trading in spectrum rights.

2.10 Anti-competitive behavior

In some regional or national markets for wireless services parties with monopolist or oligopolist power have in some cases resisted trading unused spectrum through a secondary market on competitive (or 'strategic') grounds, despite clear economic benefits. Spectrum rights have thus in some cases been 'warehoused', rather than sold or leased. Such conduct should be discouraged.

2.11 Linkage to provisioning

As the secondary market evolves it will increasingly become an integrated source of data to service companies. The fulfillment of short-term spectrum trades, however, will require standardizing data flows. "Clearing house" type services will be required, including certification of delivery, reprogramming of receiving equipment (such as antennae) and monitoring of service quality and interference.

3. HIGH LEVEL LESSONS FROM OTHER SECONDARY MARKETS

Valuable parallels and comparisons may be drawn from the development of secondary markets for other tradable assets, such as commodities markets, securities markets, fixed interest markets and derivative markets. Macquarie is active in many of these markets, and is drawing from this experience in developing its SpectrumDesk program.

Many of the submissions to the FCC assume that spectrum right trading already resembles, or will soon come to resemble, a number of other commodity markets. Although lessons on how a viable secondary market should operate may be learned from existing markets, radio frequency spectrum differs from other traded assets in various significant ways.

3.1 Limited stock of suitable spectrum

Unlike most commodities, the supply of spectrum in each geographic area is physically limited. This will shape the liquidity of a secondary market and carries inherent risk of market shortages and distortion due to speculation or 'hoarding' of inventories. Additionally, not all radio frequency spectrum is suitable for all uses (e.g. mobile telephony), further limiting supply, though technology may hopefully be developed that allows spectrum to be recycled for wider use.

3.2 Substitutability

Many other secondary markets exhibit significant substitutability between tradable assets from the perspective of a market participant, including bonds with equal risk ratings, Fortune 500 stocks or BTUs of natural gas equivalent. Many physical factors affect spectrum performance, including segment of radio frequency range, and local topography, building and vegetation.

3.3 Physicality

As noted above, spectrum has many physical properties that affect performance in the locality of use. Changes in these characteristics over time may change performance or usability of a spectrum right.

3.4 Competitive issues

Spectrum holders may resist selling spectrum assets to direct competitors, despite price superiority. While private contract sales allow potential sellers to control the range of buyers, an anonymous market limits such behavior.

In some regional or national markets, spectrum rights are highly valued, restricting the ability of smaller companies to compete for the underlying spectrum right. In these circumstances, capitalization requirements that exclude some parties from bidding for these valuable rights may be mitigated by requiring large spectrum holders to sell short-term access to the spectrum network.

3.5 Principal trading

The FCC should compare the market models used by a 'market maker' (commodities), and a spectrum trading exchange. In the 'market maker' model a trader may buy or sell spectrum rights as 'principal' or 'dealer', assuming ownership and risk positions, and inviting other participants to trade with him. The exchange model would be regulated by market rules, and be closely supervised by government authorities (e.g. FCC, Department of Commerce). It may not be appropriate to allow the market operator of an exchange to trade as principal, which could confuse the market for spectrum rights and leave the market short of certain spectrum.

4. RISKS

A number of key risks arise in establishing a liquid secondary market for spectrum rights which enjoys the necessary confidence among participants:

4.1 Free market outcomes do not always serve the public interest

There is likely to be tension between a market maker mechanism and the FCC's public interest goals. The market maker will be motivated to maximize its trading returns, even if that involves buying excessive amounts of spectrum from the market. Due to the limited amount of spectrum, it is critical to avoid unnecessary shortages, though trading by the principal may in some circumstances create further shortages. The recent shortage of supply in the Californian electricity market presents an example of a marketplace delivering negative outcomes.

4.2 'Market making' versus exchange

Secondary trading of spectrum could occur through a market making arrangement where a 'commodity' trader declares its trading need and seeks counterparties to bid against this position. An exchange operates on an impartial basis, and the operator does not typically participate as principal in trading. Exchange based markets include exchanges such as the NYSE and NASDAQ.

An exchange structure, by eliminating the risk associated with principal trading, thus offers key advantages for trading spectrum.

4.3 Positive obligations required to eliminate asset 'latency'

A further risk arises from the failure by large spectrum license holders to use spectrum which they have purchased. In the future, such latency may be provisioned for short-term use, though incumbents are currently free of any positive obligation to use their spectrum licenses fully. Since the financial cost of time-based decay in holding the spectrum does not necessarily promote good corporate behavior, a positive incentive, such as accelerated reduction of the right of renewal for that spectrum, may be in order.

4.4 Network dependency

To ensure a vibrant secondary market, potential purchasers of spectrum must be assured of reasonable processes to obtain access (as applicable) to third party antennae, towers and 'backhaul'. While existing regulations already facilitate access to physical infrastructure related to wireless communications, a vibrant secondary market in spectrum assets will require a comprehensive and timely process.

5. RECOMMENDATIONS

While a secondary market for radio frequency spectrum rights should be driven by market forces, in the following specific areas the Commission must consider creating conditions that facilitate trading and reliance on the underlying rights, as well as controls that ensure maximum liquidity is circulated through the market (either on a lease or sale basis). Due to finite quantities of spectrum and the public interest in ensuring full use of this shared resource, private sector managed marketplaces must co-exist within a robust and transparent regulatory framework.

5.1 The case for regulation

5.1.1. Regulation can promote the viability of a secondary market

Regulation should be used to clarify and harmonize the legal rights and obligations associated with radio frequency spectrum. Currently different types of spectrum are treated in a variety of ways legally, with uncertainty or rigidity surrounding the 'ownership', use and transferability of some spectrum rights. Unless these foundational issues are satisfactorily resolved, standardization of contractual rights will fall short of that of other successful commodity markets.

5.1.2. Regulation can be used to promote good market outcomes

Policy objectives, including *inter alia* maximum use of the finite supply of radio frequency spectrum and promotion of competition between service providers, require management of market outcomes. The recent Californian energy crisis is an example of negative outcomes arising from free market resource allocation being applied to artificially low prices (hence limiting supply).

5.1.3. Regulation can reduce risks

Targeted regulation can promote liquidity in the secondary market by creating positive obligations not to 'warehouse' surplus spectrum rights, and ensuring access to associated network services for purchasers or lessees of such rights. In addition, the nature and transferability of the obligations of spectrum rights holders must be made clear. One device that could be used to promote this objective would be to condition a renewal 'right' at the conclusion of a license period on the extent to which that spectrum was fully utilized during the license period.

5.1.4 Comprehensive monitoring of available spectrum

Many secondary markets, such as securities markets, promote liquidity and market confidence by maintaining a comprehensive catalog of interests and ownership rights. In the Australian context this approach is applied to spectrum rights in a manner that allows interested parties to verify the rights held by a counterpart. In Australia transfer of spectrum rights between private interests become final only when recorded on the national spectrum register.

Maintenance of an up to date spectrum database permits greater confidence among participants in secondary trading, and higher velocity of transactions. To enable a future 'spot' market where real-time provisioning depends upon market trades, an accurate database of rights will be essential.

5.1.5. Aggressively attack barriers to trading

Barriers to secondary trading of spectrum should be minimized in particular transaction taxes and charges applied by Federal, State and City authorities that apply to spectrum rights or their derivatives. Federal regulation could be used to achieve this outcome.

5.2 Promote competition between marketplaces and market models

The development of an effective secondary market for spectrum can be promoted by permitting more than one market model to operate. Most other examples of market trading suggest that as a market matures liquidity attracts further liquidity, and eventually leads to consolidation in one or two main marketplaces, such as the NYSE and the NASDAQ.

5.3 Establish appropriate measures of success

It is only possible to assess the performance of markets for the secondary trading of spectrum rights over time by applying appropriate measures. It is recommended that the FCC set specific goals for trading of rights, including those below:

5.3.1. Turnover of a vibrant secondary market should eventually exceed total stock of market inventory (e.g. US Municipal Securities, US Treasury securities)

5.3.2. Access to valuable spectrum is not limited to large operators (i.e.. local service providers)

5.3.3. Progress towards real-time trading of spectrum rights and provisioning is being made.

ANNEX

SUMMARY OF AUSTRALIAN SYSTEM FOR ALLOCATION AND RE-ALLOCATION OF SPECTRUM OWNERSHIP AND RIGHTS OF USE

The Australian Legal and Regulatory model for the allocation and trading of public radio spectrum can be considered as one of the most advanced in the world, and as one of the world's most favorable for efficient trading and re-allocation of ownership and limited term third party use rights. The system is believed to be currently the subject of study as a comparison model in the UK.

Essentially, these rules are contained in the following laws:

- Radiocommunications Act 1992 ("**Radcom Act**")
- Radiocommunications (Trading Rules for Spectrum Licenses) Determination 1998 ("**Trading Determination**")
- Radiocommunications (Third Party Use – Spectrum License) Rules 2000 (No. 2) ("**Third Party Use Rules**")

These rules provide for classification of controlled (i.e. Public) spectrum into 3 types:

- **Class Licenses** – applicable to particularly to licenses of low interference devices, such as remote control for TVs, etc
- **Apparatus Licenses** – applicable to specified devices, often required to be operated inter-dependently
- **Spectrum Licenses** – a new type of license structure, now the preferred model.

These rules are supported by a range of other laws, such as carrier licensing requirements, individual transmitter and receiver licensing requirements, administrative and charging provisions, etc.

Under the spectrum license scheme, which is governed by Part 3.2 of the Radcom Act, holders of spectrum licenses effectively control the use (or non-use) of licensed spectrum for the period of the license. Licensees have control over the technologies to which the spectrum is applied.

Division 5 of Part 3.2 of the Radcom Act permits trading of spectrum licenses. Under the Trading Determination, trading may take place in respect of the whole or any part of a spectrum licensees total license provided that what is traded is "not less than a whole STU or multiple of whole STU's". The term "STU" is a reference to a "Standard Trading Unit", a term which was originated in the marketing plan for spectrum licensed spectrum when it was first issued.

A Standard Trading Unit is an item of property which is defined at the first dimension geographically, specific local area dimensioned by latitude and longitude, and at the second dimension by time (normally 15 years) and at the third dimension by licensed radio frequency covered by that license for that STU.

There are also a number of ancillary rules, such as specific provisions of the Income Tax Assessment Act 1997, by which spectrum licensed spectrum, held as STU's, is deemed to constitute property which is, for instance, subject to depreciation and consequent deduction against otherwise taxable income of spectrum licensees.

Section 68 of the Radcom Act also permits spectrum licensees to authorize third parties to use their spectrum licensed, that right is subject to the Third Party Trading Rules.

The operating effect of all of these provisions is that spectrum is capable of being made subject to dealings both in respect of ownership of parts of a license (being not less than whole STU's) and also rights of third party use without restriction as to area (e.g. regardless of whether the authorization relates to less than a whole STU). However, under the Third Party Trading Rules, the Licensee remains liable for all of the Licensee's obligations under the Act (including obligations against allowing interference to be caused to other licensees), and any third party authorization must also always be subject to an immediate right by the Licensee to terminate the third party use entitlement, albeit subject to a reservation of a right of damages for the authorized third party in that event.

This system permits the Government and its Agencies, firstly to control the allocation of spectrum by reserving the direct interface exclusively to the licensed owners of the Spectrum Licenses, secondly to permit Licensees to actively exploit their license entitlements by authorizing third parties to use those rights and to manage that use by agreement with the third parties, and thirdly to exercise ultimate control by mandating the termination of Third Party Use Rights where deemed appropriate.